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(54) MOTOR DRIVING IGBT MODULE

(57) Abstract:

PURPOSE: To protect an IGBT module by a method wherein the IGBT module is composed of an FRD and an IGBT which has a larger energy strength for a unit area than the FRD and an energy produced by a sharp overvoltage caused by an avalanche breakdown is consumed by the IGBT.

CONSTITUTION: A power supplied from a 3-phase or single-phase power supply 1 is converted into a DC power by a converter unit 2 and, further, inverted into an AC power by an inverter unit 3 to control a motor 4. An overvoltage protective circuit 5 detects the output voltage of the converter unit 2 and, if the detected voltage exceeds a specified value, stops the operation of the inverter unit 3 for protection. However, as the operation voltage of the overvoltage protective circuit 5 is set taking a surge voltage into consideration, there is a possibility of the overvoltage breakdown of a power device caused by an avalanche drop. Therefore, an IGBT module is composed of an FRD and an IGBT which has a lower breakdown strength than FRD and whose n--type layer has a larger thickness to obtain a power module whose heat radiation properties are improved and whose possibility of the breakdown is substantially reduced.

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